

REMARKS

In this Response, Applicants amend claims 3, 13, and 18. No new matter has been added.

Claims 1-26 are currently pending, of which claims 1, 12, and 16 are independent. Applicants respectfully submit that all of the pending claims are in condition for allowance.

I. Telephone Interview with the Examiner

Applicants thank the Examiner for the telephone interview conducted in August 2009. The topic of the interview focused on the 35 U.S.C. § 103 rejections concerning the “custom storage class” recited in independent claims 1, 12, and 16.

During the interview, Applicants discussed the use of a *data storage class* to prescribe how data is represented in source code produced from a graphical model, and *predefined sets of storage classes* which may be provided by code generators. Applicants then addressed the novelty of the claimed *custom storage classes*, which can be defined by a user with user-defined characteristics. Applicants presented arguments that the claimed custom storage class is not disclosed, taught or suggested by “Real-Time Workshop® User’s Guide,” January 1999 (hereafter “RTW_UG”) or by U.S. Patent Publication No. 2003/0056195 to Hunt (hereafter “Hunt”). The Examiner indicated that he believes it would be obvious for one having ordinary skill in the art to provide user customizations to a predefined storage class, and that this would result in a custom storage class.

II. Objection to the Claims

Claims 3, 13, and 18 are objected to because emphatic dash in “user-selected” should be changed to a hyphen (Office Action, page 2). Applicants amend claims 3, 13, and 18 to correct this informality. No new matter has been added. Accordingly, Applicants respectfully request reconsideration and withdrawal of the above objection to claims 3, 13, and 18.

III. Rejection of Claims 1-8, 11-23, and 26 under 35 U.S.C. § 103(a)

Claims 1-8, 11-23, and 26 are rejected under 35 U.S.C. § 103(a) as being unpatentable over RTW_UG in view of Hunt (Office Action, page 2). Applicants respectfully traverse the 35 U.S.C. § 103(a) rejection of claims 1-8, 11-23, and 26 for the reasons set forth below.

A. Claim 1

Independent claim 1 recites:

“In an electronic device having a graphical modeling and execution environment, said graphical modeling and execution environment including at least one graphical model, a method comprising:

providing an automatic code generator to create source code that implements functionality of said at least one graphical model and that corresponds to data referenced by said at least one graphical model;

providing a predefined storage class in said graphical modeling and execution environment, said *predefined storage class specifying a first manner in which said automatic code generator creates said source code corresponding to said data referenced by said at least one graphical model in said graphical modeling and execution environment*;

providing a user interface with a plurality of selectable parameters;

defining a custom storage class in said graphical modeling and execution environment utilizing parameters selected by a user from said plurality of selectable parameters, said *custom storage class specifying a second manner in which said automatic code generator creates source code corresponding to said data referenced by said at least one graphical model in said graphical modeling and execution environment, said second manner differing from said first manner*; and

generating source code implementing said functionality of said at least one graphical model using said automatic code generator, said generating comprising:

using said custom storage class to generate source code corresponding to said data referenced by said at least one graphical model.” [emphasis added]

Applicants respectfully submit that RTW_UG and Hunt, alone or in any reasonable combination, fail to disclose or suggest at least the following features of amended independent claim 1: “*predefined storage class specifying a first manner in which said automatic code generator creates said source code corresponding to said data referenced by said at least one*

graphical model ... custom storage class specifying *a second manner* in which said automatic code generator creates source code corresponding to said data referenced by said at least one graphical model in said graphical modeling and execution environment, *said second manner differing from said first manner.*" In particular, a combination of RTW_UG and Hunt does not disclose or suggest specifying *two different manners* (i.e. a first manner and a second manner) in which an automatic code generator creates source code for the same data referenced by the same graphical model. Moreover, the combination of RTW_UG and Hunt does not disclose or suggest a custom storage class as recited in claim 1.

i. The RTW_UG Reference

The Examiner acknowledges that RTW_UG does not disclose or suggest the custom storage class recited in claim 1 (Office Action, page 3).

RTW_UG does not disclose or suggest specifying *two different manners* (i.e. a first manner and a second manner) in which an automatic code generator creates source code for the same data referenced by the same graphical model, as required by claim 1.

RTW_UG also does not disclose or suggest a *custom storage class* specifying a second manner in which an automatic code generator creates source code, as required by claim 1. The RTW_UG system does not support custom storage classes for generating source code.

During the Examiner interview, the Examiner pointed to the storage classes discussed at page 3-19 of RTW_UG as being analogous to the predefined storage class recited in claim 1. The Examiner argued that it would be obvious for one having ordinary skill in the art to provide user customizations to the storage classes of RTW_UG, and that this would result in a custom storage class.

Applicants respectfully submit that providing the custom storage class of claim 1 would not have been obvious in view of page 3-19 of RTW_UG, because the technique of providing a custom storage class was not part of the ordinary capabilities of a person of ordinary skill in the art, even in view of the teachings of RTW_UG. RTW_UG does not disclose or suggest providing a custom storage class. A person of ordinary skill in the art would not ordinarily be

capable of providing a custom storage class, even in view of RTW_UG, because creating a custom storage class for use with an automatic code generator requires the use of programmatic callbacks to the lower levels of the code generator architecture (Applicants' specification, page 2). The writing of the programmatic callbacks requires an in-depth knowledge of the workings of the automatic code generator (Applicants' specification, page 2). The required level of knowledge regarding the automatic code generator is high, and would not fall within the ordinary capabilities of a person of ordinary skill in the art.

As such, Applicants respectfully submit that RTW_UG fails to disclose or suggest "predefined storage class specifying *a first manner* in which said automatic code generator creates said source code corresponding to said data referenced by said at least one graphical model ... custom storage class specifying *a second manner* in which said automatic code generator creates source code corresponding to said data referenced by said at least one graphical model in said graphical modeling and execution environment, *said second manner differing from said first manner*," as recited in claim 1.

ii. The Hunt Reference

The addition of Hunt does not cure the shortcomings of RTW_UG in disclosing or suggesting the above feature of claim 1.

The Examiner cites paragraphs 6, 50, 83 and 88 of Hunt as disclosing or suggesting the custom storage class recited in claim 1 (Office Action, pages 4 and 5).

Applicants respectfully disagree with the Examiner's characterization of Hunt, because Hunt does not disclose or suggest specifying *two different manners* (i.e. a first manner and a second manner) in which an automatic code generator creates source code for the same data referenced by the same graphical model. Hunt provides an object repository that contains inter-related objects (Hunt, abstract). Hunt discusses using meta-data for generating object-oriented code for the objects contained in the repository (Hunt, paragraphs 6, 50, and 83). A user creates meta-data to define an object and its relationships with other objects (Hunt, paragraphs 6, 50, and 83). Source code for the object is then created from the meta-data, in which the source code defines the object and its relationships (Hunt, paragraphs 6, 50, 83, and 88). Thus, Hunt

discusses using meta-data associated with an object to specify *a single manner* in which a code generator creates source code for the object.

Hunt also does not disclose or suggest a *custom storage class* specifying a second manner in which an automatic code generator creates source code, as required by claim 1. The Hunt system does not support custom storage classes for creating source code corresponding to the objects in the Hunt repository.

As such, Applicants respectfully submit that Hunt fails to disclose or suggest “predefined storage class specifying *a first manner* in which said automatic code generator creates said source code corresponding to said data referenced by said at least one graphical model ... custom storage class specifying *a second manner* in which said automatic code generator creates source code corresponding to said data referenced by said at least one graphical model in said graphical modeling and execution environment, *said second manner differing from said first manner*,” as recited in claim 1.

For at least the reasons set forth above, Applicants respectfully submit that RTW_UG and Hunt, alone or in any reasonable combination, do not support a 35 U.S.C. § 103(a) rejection of claim 1. Accordingly, Applicants respectfully request reconsideration and withdrawal of the above 35 U.S.C. § 103(a) rejection of claim 1.

B. Claims 2 and 4

Claims 2 and 4 depend from independent claim 1 and, as such, incorporate all of the features of claim 1. As such, claims 2 and 4 are allowable for at least the reasons set forth above with respect to claim 1.

Furthermore, Applicants respectfully submit that RTW_UG and Hunt, alone or in any reasonable combination, fail to disclose or suggest at least the following feature of claims 2 and 4: “providing a view of salient aspects of said source code generated by said automatic code generator utilizing said user-selected parameters” and “displaying salient aspects of said adjusted source code in said view of salient aspects of said source code.”

In the Office Action, the Examiner cites the “MdlStart Function Custom Code dialog box” on page 11-6 of RTW_UG as disclosing or suggesting the above features of claim 2 and 4 (Office Action, pages 6 and 7).

Applicants respectfully disagree with the Examiner’s interpretation of the aforementioned dialog box for the following reasons. RTW_UG discusses allowing a user to place his/her own code inside the code generated by Real-Time Workshop. The “MdlStart Function Custom Code” dialog box provides text fields in which the user can specify his/her own code. This user code is then added to the code generated by Real-Time Workshop (RTW_UG, page 11-4 to 11-6).

The dialog box in RTW_UG is provided for *accepting user input* of code, not for *displaying or outputting generated code*. That is, the dialog box in RTW_UG does not provide a view of source code generated by an automatic code generator.

As such, RTW_UG does not disclose or suggest “providing a view of salient aspects of said source code generated by said automatic code generator utilizing said user-selected parameters,” as recited in claim 2, and “displaying salient aspects of said adjusted source code in said view of salient aspects of said source code,” as recited in claim 4.

For at least the reasons set forth above, Applicants respectfully submit that RTW_UG and Hunt, alone or in any reasonable combination, do not support a 35 U.S.C. § 103(a) rejection of claims 2 and 4. Accordingly, Applicants respectfully request reconsideration and withdrawal of the above 35 U.S.C. § 103(a) rejection of claims 2 and 4.

C. Claims 3, 5-8 and 11

Claims 3, 5-8, and 11 depend from independent claim 1 and, as such, incorporate all of the elements of claim 1. As such, claims 3, 5-8, and 11 are allowable for at least the reasons set forth above with respect to claim 1. Accordingly, Applicants respectfully request reconsideration and withdrawal of the above 35 U.S.C. § 103(a) rejection of claims 3, 5-8, and 11.

D. Claim 12

Independent claim 12 recites:

“An electronic device having a modeling and execution environment with at least one graphical model, said electronic device comprising:

a processor for:

providing an automatic code generator to create source code that implements functionality of said at least one graphical model and that corresponds to data referenced by said at least one graphical model,

providing *a predefined storage class specifying a first manner in which said automatic code generator creates said source code corresponding to said data referenced by said at least one graphical model* in said modeling and execution environment,

defining a custom storage class in said modeling and execution environment utilizing parameters selected by a user from a plurality of selectable parameters, said *custom storage class specifying a second manner in which said automatic code generator creates source code corresponding to said data referenced by said at least one graphical model in said modeling and execution environment, said second manner differing from said first manner*, and

generating source code implementing said functionality of said at least one graphical model using said automatic code generator, said generating using said custom storage class to generate source code corresponding to said data referenced by said at least one graphical model; and

a display device for:

displaying a user interface with said plurality of selectable parameters for said custom storage class, and

displaying a view of salient aspects of said source code generated by said automatic code generator utilizing said user-selected parameters.” [emphasis added]

Applicants respectfully submit that RTW_UG and Hunt, alone or in any reasonable combination, fail to disclose or suggest at least the following features of independent claim 12: “*a predefined storage class specifying a first manner in which said automatic code generator creates said source code corresponding to said data referenced by said at least one graphical model... custom storage class specifying a second manner in which said automatic code generator creates source code corresponding to said data referenced by said at least one graphical*

model in said modeling and execution environment, *said second manner differing from said first manner.*”

For at least the reasons set forth above in connection with claim 1, Applicants respectfully submit that RTW_UG and Hunt, alone or in any reasonable combination, do not support a 35 U.S.C. § 103(a) rejection of claim 12. Accordingly, Applicants respectfully request reconsideration and withdrawal of the above 35 U.S.C. § 103(a) rejection of claim 12.

E. Claims 13-15

Claims 13-15 depend from independent claim 12 and, as such, incorporate all of the elements of claim 12. Accordingly, claims 13-15 are allowable for at least the reasons set forth above with respect to claim 12. Accordingly, Applicants respectfully request reconsideration and withdrawal of the above 35 U.S.C. § 103(a) rejection of claims 13-15.

F. Claim 16

Independent claim 16 recites:

“A computer-readable medium for use in an electronic device having a graphical modeling and execution environment, said graphical modeling and execution environment including at least one graphical model, said computer-readable medium storing computer-executable instructions for:

providing an automatic code generator to create source code that implements functionality of said at least one graphical model and that corresponds to data referenced by said at least one graphical model;

providing a predefined storage class in said graphical modeling and execution environment, said *predefined storage class specifying a first manner in which said automatic code generator creates said source code corresponding to said data referenced by said at least one graphical model* in said graphical modeling and execution environment;

providing a user interface with a plurality of selectable parameters;

defining a custom storage class in said graphical modeling and execution environment utilizing parameters selected by a user from said plurality of selectable parameters, said *custom storage class specifying a second manner in which said automatic code generator creates source code corresponding to said data referenced by said at least one graphical model in said graphical modeling and execution environment, said second manner differing from said first manner*; and

generating source code implementing said functionality of said at least one graphical model using said automatic code generator, said generating comprising:

using said custom storage class to generate source code corresponding to said data referenced by said at least one graphical model.” [emphasis added]

Applicants respectfully submit that RTW_UG and Hunt, alone or in any reasonable combination, fail to disclose or suggest at least the following features of independent claim 16: “predefined storage class specifying *a first manner* in which said automatic code generator creates said source code corresponding to said data referenced by said at least one graphical model... custom storage class specifying *a second manner* in which said automatic code generator creates source code corresponding to said data referenced by said at least one graphical model in said graphical modeling and execution environment, *said second manner differing from said first manner.*”

For at least the reasons set forth above in connection with claim 1, Applicants respectfully submit that RTW_UG and Hunt, alone or in any reasonable combination, do not support a 35 U.S.C. § 103(a) rejection of claim 16. Accordingly, Applicants respectfully request reconsideration and withdrawal of the above 35 U.S.C. § 103(a) rejection of claim 16.

G. Claims 17-23 and 26

Claims 17-23 and 26 depend from independent claim 16 and, as such, incorporate all of the elements of claim 16. Accordingly, 17-23 and 26 are allowable for at least the reasons set forth above with respect to claim 16. Accordingly, Applicants respectfully request reconsideration and withdrawal of the above 35 U.S.C. § 103(a) rejection of claims 17-23 and 26.

IV. Rejection of Claims 9, 10, 24, and 25 under 35 U.S.C. § 103(a)

Claims 9, 10, 24, and 25 were rejected under 35 U.S.C. § 103(a) as being unpatentable over RTW_UG in view of Hunt, and further in view of U.S. Patent Publication No. 2003/0225774 to Davidov (hereafter “Davidov”) (Office Action, page 17). Applicants

respectfully traverse the 35 U.S.C. § 103(a) rejection of claims 9, 10, 24, and 25 for the reasons set forth below.

RTW_UG, Hunt and Davidov, alone or in any reasonable combination, fail to disclose or suggest each and every feature of claims 9, 10, 24, and 25.

RTW_UG and Hunt have been summarized above.

RTW_UG and Hunt, alone or in any reasonable combination, fail to disclose or suggest each and every feature of independent claim 1 from which claims 9 and 10 depend, and independent claim 16 from which claims 24 and 25 depend. The teachings of Davidov do not supplement RTW_UG and Hunt in such a way as to cure the shortcomings of RTW_UG with respect to the features of independent claims 1 and 16.

Davidov relates to an infrastructure for creating applications for mobile information devices, using a tag-based markup language (Davidov, paragraph [0013]).

Regarding independent claim 1 from which claims 9 and 10 depend, Davidov does not disclose or suggest “predefined storage class specifying *a first manner* in which said automatic code generator creates said source code corresponding to said data referenced by said at least one graphical model … custom storage class specifying *a second manner* in which said automatic code generator creates source code corresponding to said data referenced by said at least one graphical model in said graphical modeling and execution environment, *said second manner differing from said first manner*,” as recited in claim 1. Davidov contains not disclosure or suggestion on specifying two different manners in which an automatic code generator creates source code corresponding to data referenced by a graphical model, as required by claim 1. As such, a combination of RTW_UG, Hunt and Davidov fails to disclose or suggest each and every feature of claims 9 and 10 which depend from claim 1.

Regarding independent claim 16 from which claims 24 and 25 depend, Davidov does not disclose or suggest “predefined storage class specifying *a first manner* in which said automatic code generator creates said source code corresponding to said data referenced by said at least one graphical model… custom storage class specifying *a second manner* in which said

automatic code generator creates source code corresponding to said data referenced by said at least one graphical model in said graphical modeling and execution environment, *said second manner differing from said first manner*,” as recited in claim 16. Davidov contains not disclosure or suggestion on specifying two different manners in which an automatic code generator creates source code corresponding to data referenced by a graphical model, as required by claim 16. As such, a combination of RTW_UG, Hunt and Davidov fails to disclose or suggest each and every feature of claims 24 and 25 which depend from claim 16.

For at least the reasons set forth above, Applicants respectfully submit that RTW_UG, Hunt and Davidov, alone or in any reasonable combination, do not support a 35 U.S.C. § 103(a) rejection of claims 9, 10, 24, and 25. Accordingly, Applicants respectfully request reconsideration and withdrawal of the above 35 U.S.C. § 103(a) rejection of claims 9, 10, 24, and 25.

CONCLUSION

In view of the foregoing amendments and arguments, Applicants believe that all claims should be passed to issuance. Should the Examiner feel that a teleconference would expedite the prosecution of this application, the Examiner is urged to contact the Applicants' attorney at (617) 227-7400.

Please charge any shortage or credit any overpayment of fees to our Deposit Account No. 12-0080, under Order No. MWS-062RCE2. In the event that a petition for an extension of time is required to be submitted herewith, and the requisite petition does not accompany this response, the undersigned hereby petitions under 37 C.F.R. § 1.136(a) for an extension of time for as many months as are required to render this submission timely. Any fee due is authorized to be charged to the aforementioned Deposit Account.

Dated: October 6, 2009

Respectfully submitted,

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